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(54) Title: PEPTIDE CONJUGATE USEFUL FOR CELL NUCLEUS MOLECULAR IMAGING AND TUMOR THERAPY

(57) Abstract: Described is a conjugate comprising (a) an amphiphilic transport peptide of human origin as a transmembrane module (TPU), (b) a nuclear localization sequence (NLS) and (c) a signalling and/or drug carrying module (SM), preferably comprising Gd, Ga, Fe, Mn, I and/or F as (diagnostic) image creating compound. Said conjugate is useful for diagnostic purposes, e.g., for cell tracking by MRI, as a contrast agent (e.g., replacing a "biopsy clip") for MRI, or for determining the activity of DNA repair enzymes by MRI. Said conjugate is also useful for therapy, e.g., for chemotherapy or intranuclear Gadolinium Neutron Capture Therapy (GNCT). The transmembrane module (TPU) is selected among peptides of human origin, whose amino acid sequences are similar to the sequence of the antennapedia fragment RQIKIWFQNRRMKWKK. In a specific embodiment, TPU is derived from the human homebox protein HOX-B1. The nuclear localization sequence (NLS) is derived from the simian virus 40-T antigen or from a transcription factor.

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A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 C07K14/47 A61K49/14 A61K47/48 A61P35/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, CHEM ABS Data, Sequence Search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 95/34295 A (UNIV VANDERBILT) 21 December 1995 (1995-12-21) * page 6, second paragraph; page 11, first paragraph; claims 11-15 * -----	1-3,5-16
Y	HEIJNE VON G ET AL: "SPECIES-SPECIFIC VARIATION IN SIGNAL PEPTIDE DESIGN IMPLICATIONS FOR PROTEIN SECRETION IN FOREIGN HOSTS" FEBS LETTERS, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 244, no. 2, February 1989 (1989-02), pages 439-446, XP001149430 ISSN: 0014-5793 * page 439, left-hand column, second paragraph; page 439, right-hand column, last paragraph * ----- -/-	1-3,5-16

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>BRAUN K ET AL: "A biological transporter for the delivery of peptide nucleic acids (PNAs) to the nuclear compartment of living cells" JOURNAL OF MOLECULAR BIOLOGY, LONDON, GB, vol. 318, no. 2, 2002, pages 237-243, XP002238940 ISSN: 0022-2836 * abstract; table 1; page 242, left-hand columns, lines 5-9 *</p> <p>-----</p>	5-10
Y	<p>BHORADE RAJEEV ET AL: "Macrocyclic chelators with paramagnetic cations are internalized into mammalian cells via a HIV-tat derived membrane translocation peptide." BIOCONJUGATE CHEMISTRY, vol. 11, no. 3, May 2000 (2000-05), pages 301-305, XP002242549 ISSN: 1043-1802 * abstract; page 301, right-hand column, lines 5-8; page 302, left-hand column, lines 1-4; figure 3 *</p> <p>-----</p>	2,12-14

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

[REDACTED] /EP 03/13413

Patent document cited in search report	Publication date		Patent family member(s)		Publication date
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